MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS

TL146 2012-015951 978-1-4496-7108-2
Fundamentals of automotive technology; principles and practice. (online access included)
VanGelder, Kirk T.
Jones & Bartlett, ©2014 2021 p. $131.95

VanGelder, an automotive technician and automotive service instructor, provides automotive technician students with a textbook aligned with the 2012 National Automotive Technicians Education Foundation Automobile Accreditation Task Lists (provided at the beginning of each chapter). It explains how to maintain, diagnose, and repair automobiles, and discusses safety and other foundational concepts, engine repair, automatic and manual transmission, steering and suspension, brakes, electrical systems, heating and air conditioning, engine performance, and diesel engines. Online access to practice exams and simulated certification exams is included, as are an audio version of the book, chapter pretests, skill evaluation sheets, and other resources.

TL214 2013-937642 978-0-85709-472-8
Vehicle thermal management systems; proceedings.
Vehicle Thermal Management Systems Conference (2013: West Midlands, UK)
Woodhead Publishing, ©2013 337 p. $500.00 (pa)

The 26 papers from VTMS 11 are presented in sections on engines, heat exchangers, waste heat and energy recovery, simulation, underhood and vehicle simulation, heat and alternating current in alternative power trains, and papers for publication only. Among the topics are reducing thermal losses from automotive lubricant circuits during cold start by applying polymer insulation, using numerical simulation to investigate refrigerant maldistribution in the evaporator of an automotive air conditioning system and to improve the design of the system, evaluating thermal systems in hybrid electric vehicles by simulation, transient fan modeling and effects of blade deformation in a truck cooling fan installation, and using palliative technologies to minimize heating-ventilating-air conditioning loads and their impact on the range of electric vehicles. There is no subject index.

TL220 978-2-7108-0994-4
Hybrid vehicles; from components to system.
Title main entry. Ed. by F. Badin. Trans. by Robert Bononno and Trevor Jones.
Editions Technip, ©2013 493 p. $98.00

Engineers from the French Petroleum Institute examine technical aspects of vehicles that use both petroleum fuel and electricity. Such vehicles, they say allow drivers to use the most efficient mode at any particular time, both encourage and allow internal combustion engines to be made more efficient, and serve as a transition to all-electric vehicles of the future. The topics are vehicle use; internal combustion engines; the electric drive-train; on-board energy storage systems; hybridization; the control of hybrid vehicles; and a comparative study of hybrid vehicles in terms of greenhouse gas emissions, energy consumption, and cost. Distributed in the US by AtlasBooks.

TL240 2013-016403 978-0-7680-7640-0
Plastics application technology for safe and lightweight automobiles.
Title main entry. Ed. by Sudhakar R. Marur.
SAE International, ©2013 355 p. $109.95

The nine chapters in this engineering handbook introduce plastic technologies for manufacturing safe, lightweight, and environmentally friendly automotive segments and subsystems. The Indian contributors describe the design of crash and energy management systems, interior components, automotive glazings, plastic-metal hybrid structures, headlights, body panels, engine covers, and throttle bodies. The final chapter focuses on lightweight materials for improving fuel efficiency, renewably sourced materials, and opportunities for recycling discarded vehicles.

TL272 2013-003951 978-1-4665-1429-4
Usability evaluation for in-vehicle systems.
Harvey, Catherine and Neville A. Stanton.
CRC Press, ©2013 212 p. $99.95

Many contend that ergonomics is introduced too late in commercial development to have much impact on a product's design and usability, say Harvey (transportation research) and Stanton (human factors engineering, both U. of Southampton, Britain), and with automobiles, and especially in-vehicle information systems (IVIS), the deficiency can raise issues of safety as well as customer satisfaction. They examine how a usability evaluation of IVIS can help designers understand the limitations of current systems in order to develop new concepts and technologies. Their topics include context-of-use as a factor in determining usability, IVIS to meet the needs of drivers, whether to twist or to poke, and visual attention on the move.

TL553 2012-936305 978-1-4354-8823-6
Aviation safety; a balanced industry approach.
Ferguson, Michael D. and Sean Nelson.
Delmar, ©2014 284 p. $101.95

Ferguson (aviation, St. Cloud State U., Minnesota) and Nelson, a safety professional and technology manager currently working in insurance, present a systemic approach to aviation safety that considers all aspects and how they interact, and both practical matters and their theoretical underpinnings. They discuss ethics and aviation safety beyond compliance, regulatory oversight, risk and risk management, safety management systems, elements of effective aviation safety programs, human factors, ground safety, flight safety programs, airport safety, emergency response, and health and wellness. Chapter-end questions are provided for courses or self-review.

TL556 2013-013615 978-0-07-179972-0
Weather flying, 5th ed.
Buck, Robert N. and Robert O. Buck.
McGraw-Hill, ©2013 382 p. $25.00

The late Robert N. Buck, an aviation author and pilot, and his son Robert O. Buck, a pilot and retired airline captain, present a guide to weather flying for pilots of all experience levels. They describe theoretical aspects; checking the weather and getting information, how it works, and how to keep up with changes; what specific details reveal; equipment; temperature; the psychology of weather flying; turbulence; flying weather visually; instruments; flying technically advanced aircraft; flying in thunderstorms and ice; taking off and landing in bad weather; weather en route; and judgment. This edition includes discussion of weather information, weather phenomena and how they affect flight, updated GPS and smart technology, changes in weather information and briefings, improved anti- and deicing systems, and the pilot-electronics interface.

TL567 978-0-12-407711-9
Reliability analysis of dynamic systems; efficient probabilistic methods and aerospace applications.
Wu, Bin. (Elsevier and Shanghai Jiao Tong University Press aerospace series)
Academic Press, ©2013 202 p. $120.00

A commercial aircraft designer, Wu (computational and numerical simulation, Beijing Aeronautical Science and Technology Research Institute) presents a novel technique that applies probabilistic methods to analyze the reliability of engineering systems under harmonic loads in the low-frequency range. His goal is to overcome problems of the nonlinearity of the failure surface, the intensive computational cost, and the complexity of the dynamic system. He covers the technical background, theoretical fundamentals of the perturbation approach, application to a two-dimensional system, application to a three-dimensional helicopter model, and a complete combined approach.

TL570 2012-049232 978-1-118-47934-6
Theoretical aerodynamics.
Rathakrishnan, Ethirajan.
Wiley, ©2013 541 p. $110.00

Rathakrishnan (aerospace engineering, Indian Institute of Technology, Kanpur) presents a textbook for courses ranging from introductory undergraduate to advanced graduate. He examines both the basic and applied aspects of aerodynamic theory for students, engineers, and applied physicists, combining theoretical analysis, physical features, and application aspects. Readers are assumed to have a background equivalent to a basic course in fluid mechanics. He covers the essence of fluid mechanics, conformational transformation, the transformation of a flow pattern, vortex theory, thin aerofoil theory, the panel method, finite aerofoil theory, compressible flows, and sample flights.

TL671 2013-005449 978-1-118-56811-8
Advanced aircraft design; conceptual design, analysis, and optimization of subsonic civil airplanes.
Torenbeek, Egbert. (Aerospace series)
Wiley, ©2013 410 p. $125.00

Advanced design denotes the activity of a team of engineers and analysts during the early stages of an aircraft design and development process, explains Rorenbeek (Delft U. of Technology, the Netherlands), and deals with a set of top level requirements specifying payload/range capabilities, cabin accommodation, flight performance, and operational and